MERCHANDISING SUPPLEMENT

Electricity on the Farm

Vol. 3 JANUARY, 1930 No. 1

Selling Refrigerators

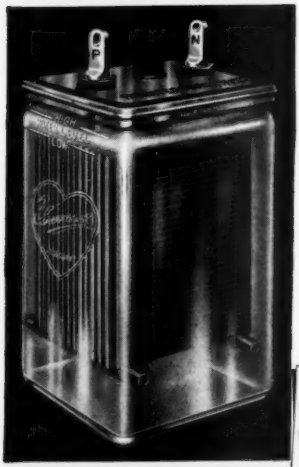
At first thought it may seem a waste of effort to try to sell electric refrigerators during the winter. While this may apply to city homes, with farms it is a different proposition.

Most farmers employing ice refrigeration put up their ice during the winter, and once they have a good supply on hand they are not particularly good prospects for electric refrigerators. Although many farmers having plenty of the natural ice in their ice houses have been sold refrigerators, due to the many advantages of the latter, such sales are hard to make.

The best time to sell electric refrigerators on farms is during the winter, before ice crops are put up. But it requires real salesmanship, and a thorough knowledge of the benefits of electric refrigeration to make sales. If the salesman can convince his customer that it is not only easier but far more satisfactory to employ electric refrigeration—and he should be able to do this if he is a good salesman—the farmer will not go to the trouble of putting up his ice, and, as a result, the sale is doubly sure, in the early spring if not during the winter months.

Incidentally the electric refrigerator has proven itself beyond question as one of the most useful and beneficial appliances around the farm home. It pays for itself through the saving of food and through the better refrigeration it is able to accomplish as compared with the natural ice method.

7,000,000



..Count 'Em!

THERE are seven million farm families reading the twenty-two national magazines that carry Universal Battery advertising.

And this advertising to seven million people has built up a demand for Universal Farm Light Batteries that many dealers are "cashing in" on.

How many of the seven million are in your territory?

Send for our latest catalog No. 75F, and prices

UNIVERSAL BATTERY COMPANY
3414 S. LaSalle Street
CHICAGO, ILL.

Batteries for Every Purse and Purpose
Automobile—Radio—Farm Light
Parts for all makes of batteries—
Shop Equipment

UNIVERSAL BATTERIES

Straws in the Wind or The Trend in Agriculture

By G. W. McCUEN
Professor Agricultural Engineering,
Ohio State University

"ALONGSIDE a switch on the outskirts of a city is a deserted factory. The products made there ceased to appeal to the buyer, and the managers did not see fit to turn their factory to other uses. Alongside the highway is an abandoned farm, not because the soil was depleted beyond rebuilding, but because the owner refused to change his production to a line that would sell.

"There are businesses and farms everywhere that still are running, some at no profit and others at a small margin, because the operator will not meet new conditions, new demands.

"The wise general of an army will vary his mode of action when he learns, by his secret service, that the enemy is aware of his plans and ready to meet his forces. The wise manager of a business will make readjustments to meet sales resistance, and a wise farmer will study to learn just what products his particular farm, operated with such labor as he may obtain, can best produce at a profit. A change in freight rates or in the tariff, or in the growth of nearby cities; any one or more factor may make the old plan unprofitable or the new plan far more profitable than the old. We have passed out of the ox-cart age into a swift moving, quick changing age that calls for readjustments on many farms."

The above is quoted from a recent farm paper editorial.

Just what are these readjustments to be? We are particularly interested at this time in those that will apply to the profitable application of electricity to agriculture,—profitable from the standpoint of both the Utility Companies and the Agricultural customer.

From a paper presented at Annual Convention of the East Central Division of the National Electric Light Association at Louisville, Kentucky.

Study the Tendencies

I believe it would be well if we were to hastily study the tendencies in American agriculture, or more properly speaking, what has been the tendencies in the past so that by this past we may obtain a vision of what may be expected in the future. These data are for the whole of the United States, but in a general way quite applicable to our own section of the country.

The land is the basis for our agricultural pursuits and it will be noted that the total number of farms has been gradually increased until now we have slightly more than 6,000,000 farms in the United States. If the data for the last decade were available, we, no doubt, would find that there is a decrease in the total number, showing that there is a consolidation of units under one management. It is impossible to discuss with any degree of accuracy the average total investment per farm due to fluctuations in land values at this time, however, it is safe to say the 1920-30 section of the curve will be precipitous. The improved land acreage per capita and the average values of machinery per acre of improved land are interesting when we study these two in comparison with the population curves both urban and rural. The improved land acreage per capita curves reveal the fact that the American

people are being fed from about the same area per capitã that they were 70 years ago, or possibly not eating so much due to the fact that labor in all industries is not as arduous as it has been in the past, due to the greater use of machinery. The most interesting curve of this group from the engineers' viewpoint is the average value of machinery per acre of improved land. This curve, as is noted, did not begin to rise until about 1890. The last decade, 1910-1920, is abnormal due to war conditions, but nevertheless, it is believed that the 1920-30 period of this curve will parallel the population curve of the United States. The curves are becoming more divergent. More people must be fed by a lesser number of agricultural workers. The gap widens, but it is being bridged by the greater use of machinery as is clearly shown. Agriculture is fast becoming mechanized. It has discovered that when power is properly applied to tasks it is profitable to use. The electrical industry is proud of the fact that more than 4 electric H.P. is at the elbow of every industrial worker in the United States. It also has possibilities in the potential agricultural load. The Marysville line has shown this in many respects.

Small Power Unit Important

Small power units have a very important place in the agriculture of today. There are great potentialities along this line. Ohio has 448,000 H.P. primary horse-power in small gas engine units, Kentucky, 139,000 H.P., and West Virginia 51,000 H.P., totaling 838,000 H.P. These could very easily be replaced by electric units if electric power were available.

These facts have been mentioned to place before us the picture of agriculture as it is painted, using statistics without colors.

The Marysville data are, we are told, a little above the average use that may be expected on rural lines. The reason for this is probably due to the fact that these cooperators have the equipment which makes it possible for them to use a large amount of current. The small use on the average rural lines in general may be due to a lack of equipment, for in many instances the rural customers had to finance the line extension and as a result of this they had little money left for the purchase of equipment.

The First Recommendation

We believe that where the finances of the customer are limited it is most logical to build up the load on the line by recommending the installation of equipment which will render a large amount of service per K. W. H. of current consumed and offer conveniences which the user has not before enjoyed. It has a certain psychological effect upon the family, and the small current consumption paves the way for other and larger installations. The water supply system, to most of us, seems logical for the first installation, as the entire family greatly enjoys this convenience. A small amount of electrical energy does a lot of pumping of water.

Following very close on or with the installation of a water system, comes the sanitary plumbing of the home and the distribution of the water to the different barns of the farm if the water pumped is well water.

The family washing can be done very cheaply and easily with the equipment now available. Such equipment makes the heavy work of "Blue Monday" something to be looked forward to instead of being dreaded. The current consumption is somewhat greater than for water pumping, however, the service rendered offsets the cost many times. This again has a good effect psychologically.

Refrigerator and Range

There is an old saying that "The way to a man's heart is through his stomach," and this holds true even today. Nothing appeals to a normal man more than to have the privilege of sitting down to a well prepared meal. This is quite possible, especially in the summer, where the electric refrigerator and range are used. The refrigerator is not only profitable to the farmer

from the standpoint of food preservation, but a profitable load for the Utility Company. Our data show an average yearly consumption of 37.9 K. W. H. per month for a 7 cubic foot box and 55.6 K. W. H. per month for the 9 cubic foot box. The average consumption for the eight boxes installed has been approximately 40 K. W. H. per month.

Argument for Range

Next to the refrigerator in the housewife's choice is the electric range. The users claim that the outstanding features of a range are (1) Ease of operation—no time lost waiting for it to heat up before cooking can be done; (2) It is ideal in the summer, for the kitchen is easier to keep cool or is not overheated on a hot day; (3) Cleanliness, to some housewives, is paramount; (4) The accurate temperature control makes cooking a pleasure; and (5) The automatic regulation makes it possible for the housewife to be relieved from house-hold duties. especially in preparation of the evening meal. The majority of the users on the Marysville line use their ranges during the summer months only, due to the fact that it is necessary to heat the kitchen with the coal stove during the winter. The record shows that during the May to Ocober period, an average of 54.9 K. W. H. was consumed per month, and only 11.2 K. W. H. during the October to May period.

I shall only mention that on three of the farms at Marysville, power is playing a very important part in their farm program.

Our experience with milking machines was not as agreeable as we had hoped it would be, but we seem now to be on the road to success with the machines. It took some one who really understood the milking machine game to successfully operate it. We found this,—that a salesman is not necessarily an engineer. He can sell goods, but when it comes to making them perform 100%, that is another story. I am offering this as a tip to any of you who may have had some dismal experiences.

In addition to the machines we had on the experimental line, a study was made by one of our

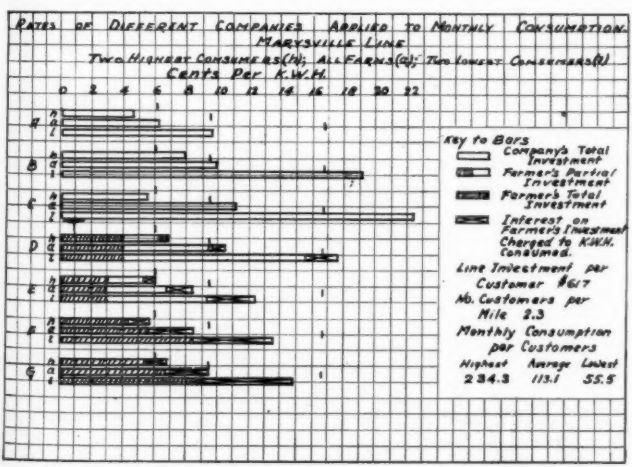

Rates of Different Companies Applied to Monthly Consumption.
Marysville Line
Two Highest Consumers (H); All Farms (a); Two Lowest Consumers (L)
Cents Per K.W.H.
0 2 4 6 8 10 12 14 16 18 20 22
Key to Bars
Company's Total Investment
Farmer's Partial Investment
Farmer's Total Investment
Interest on Farmer's Investment Charged to K.W.H. Consumed.
Line Investment per Customer $617
No. Customers per Mile 2.3
Monthly Consumption per Customers
Highest Average Lowest
234.3 113.1 55.5

Chart Showing Rates of Different Companies Applied to Monthly Consumption of the Marysville Line

senior students of the milking machines in Franklin County. Forty-one were studied. The average size herd was slightly over 19 cows. The interesting fact is that only 7% of these users were not entirely satisfied. Thirty-two declared that they would not milk without a machine, ten said the production had been increased, four had a decrease in production, and 27 found the production to be the same as for hand milking. Fifty percent found that the quality of the milk had been increased and others found it to be no better or worse. This, of course, reflected on the individual operating the machine, and his idea of cleanliness. There were other interesting facts revealed, but the chief one of interest to Utility Companies is that all declared the machine was most satisfactory when operated by electricity. The average milking machine will consume about 2 K. W. H. per cow per month. In addition to the milking machine where herds of 12 to 20 cows are milked, the dairy refrigerator and milk aerator and cooling system have an important place, for with these two units it is possible to produce a very high grade of milk. Our data on dairy refrigeration is not complete enough at this time to be submitted.

Seasonal Loads

I have not mentioned several seasonal loads like the incubator and the brooding of chicks, water heating, and other uses. We are, I am sure, now most interested in the data and charts relative to the total kilowatts consumption of the line and its seasonal fluctuation.

The K. W. H. consumption has been steadily increasing for the past three years. The year 1926-27 clearly indicates that as the equipment was added, the consumption increased. The 1927-1928 figures are indicative of a line which is not supervised, for, from December to May we were without a man to look after the work. This clearly shows that a rural service man has a legitimate place in the Rural Electrification program. The 1928-1929 follows the general contour of the previous year, but well above it. It is interesting to note the same general peaks and valleys exist in the two years, 1927-1928 and 1928-1929. The reason for the general increase in the last year is due to the fact that more equipment was added during this year, such as refrigerators and ranges.

Distribution of Farm Load

No doubt it would be of interest to know what the distribution of the load on the different farms is. The major portion of the current is consumed by lights and conveniences. The next greatest users of current are the range, the motor and the refrigerator. As previously mentioned, the water systems are the smallest consumers of current, yet they give the greatest return to the customers per K. W. H. when measured in terms of convenience and time saved. There is a tendency toward a balance of the seasonal peaks and valleys of the year. A greater use of motors in the fall and winter would bring this about, and with the popularity of the small hammer mills, and the ensilage cutter driven by 3 and 5 H.P. motors, this, no doubt, will soon balance the consumption of this season against the spring and summer period.

The line and transformer losses of this line are about what may be expected from a well balanced installation of equipment and transformers. For those who may have forgotten the kind of construction that was used on the Marysville line, it might be well to repeat those data. The current is carried at 6,600 volts on a single phase line costing complete $8,024 for 5.9 miles. It is interesting to note that the losses vary from 33.8% in March 1928, which is the valley of consumption on the line, to 17.1% in April 1929. This may be partially due to the fact that six of the transformers were reduced in size, thus lessening the standby losses.

If we may be guided by the number of groups of farmers coming in with definite questions relative to policies for rural line ex-

tensions as a criterion to judge by, we believe that rates and policies as applied to rural extension are most important questions and should be given due consideration. It is realized that dangerous ground is being approached when the question of rates and policies is precipitated into a discussion. However, it may be said, college professors rush in where angels would fear to tread. Not having the form and make-up of angels, we have taken the liberty to apply some different company rates and policies to the data we now have on the Marysville line. We would like to have had a greater number of rates for this study, but for some reason or another they were not forthcoming. However, we believe that we have a sufficient number to point the way.

The monthly consumption data of the line as a whole were taken and the seven different rates applied. In addition to this, the data for the two largest customers and the two smallest customers were also taken, and the different rates applied to them. It reveals some interesting facts.

How Chart Data is Arranged

For the sake of uniformity and ease of study, the data on the accompanying chart have been arranged so that the three distinct rates and policies are grouped together. (1) Where the company finances the line entirely, (2) Where the company and farmer jointly finance the line, (3) Where the farmer finances the line entirely. In case one, where the company finances the line entirely, the average rate charged, as indicated by the chart, for the average of all consumers, calculated on monthly consumption would be 10.36 cents per K. W. H. In case two, where the company and farmer jointly finance, the consumer would apparently pay 8.01 cents per K. W. H., while in addition an interest charge of 1.245 cents should be added. making a total charge of 9.26 cents per K. W. H. In case three, where the farmer contributes the entire cost of line extension, he would apparently pay 6.20 cents per K. W. H., but in addition an interest charge of 2.74 cents per K. W. H. should be made, making a total cost of 8.94 cents per K. W. H. Here we have a variation of only 1.42 cents per K. W. H.

Small Variation in Different Rates

Let us pause here to make an observation. The majority of the members of the Rural Service Committee are actively engaged in the operating of Public Utility properties and on various occasions, when asked by farmers to reconcile the wide variation in rates charged by utilities companies in the East Central Division of the National Electric Light Association, have responded by saying, "While various schedules of different companies bear no resemblance, the average net rate charged by the various companies in this division would not show a wide variation." No data have been available to prove this statement, so the committee as individuals asked me to compile these data. Some disappointment was evidenced by the members of the committee of these results, but after some study it was observed that there was less variation in the corrected figures of the different companies, as applied to the average Marysville data, than exists between the net rate of the large consumers and the net rate of the small consumers on the experimental line which is served by the same company under the same schedule.

In the prepartion of these figures two types of customers were kept in mind, (1) The small consumer, (2) The large consumer, who is generally a progressive farmer interested in doing his work most expeditiously. Take for example the average of the two largest consumers, which is 2,612½ K. W. H. per annum. If the rates were applied to these data (calculation based on monthly consumption) it is seen that all of the rates approach a degree of uniformity ranging from 5.57c. per K. W. H. to 6.34c. per K. W. H., or a variation of only .77 cents per K. W. H.

On the other hand, if the two

(*Continued on page* S 14)

Getting Publicity

By A. A. SHIELDS

MANY central stations, dealers and contractors do not realize that local newspapers are willing to print more legitimate news about electricity on the farm than now reaches the public eye.

There's lot of stuff that local electrical men could supply and that the home newspaper would be glad to get. And it isn't all big first-page stuff, either. Today the country correspondent includes in her weekly letter to the paper at the county seat, such items as:

C. E. Trost and L. L. Tindad have installed electric refrigeration in their homes. No more tracking over floors to fill the icebox, no more anxious hours on a hot day when the iceman fails to appear, just touch a button and everything is cooled just right.

No, that item does not mention the power company that supplies the current. But it will mean that any number of people in the neighborhood will eventually inquire of the Trosts and the Tindalls how it works. The electric light company will benefit in the long run.

How to Judge News

What is real news? How can the company, the dealer or the contractor, not having a regular publicity man, get it into the paper?

First of all, news is not a "puff" for the electrical concern. Nor is the idea to put something over on the newspaper and get into the reading columns something that should go into paid advertising. The Chicago Daily News makes that plain in a booklet it published on this subject. This booklet serves as a guide for many newspapers throughout the country because it has been widely distributed and has been commented upon in trade papers read by editors and publishers.

"It deals with a business enterprise, but it is news. The business concern is doing something that, in the opinion of the editors of the Daily News is of interest to the reading public.

"It has not been published elsewhere. It is timely. It carries no cleverly hidden sales message."

Here are some classes of news that most papers will print about electricity on the farm. Even if the local papers have assigned a reporter to visit your offices regularly there may be some tips in this list as to what he will likely regard as news:

New power lines to be built, or other development projects.

Progress revealed by annual reports, especially if they show a condition in which the community may take local pride.

Smaller Papers Easy to Reach

Some smaller papers will use news of installations, wiring, refrigeration, etc., as they desire to get as many local names into the paper as possible. In a small community this is really a matter of interest to the paper's subscribers.

Announcements of demonstrations before farmers' institute meetings, farm bureau gatherings, women's organizations and the like, make real news; also additions to plants and purchase of new equipment.

Attendance of officials or firm members at sectional, state or national conventions of electrical men, and especially if a local man is to take an active part in the convention, is worthy of notice. If somebody from the firm is to talk on farm electricity and it shows the firm as a leader, let the paper know about that. If the talk is to portray the community as one of the best developed so far as rural lighting is concerned, the paper will be glad to print in detail that portion of the address.

These do not include the "feature" articles or stories which reporters like to dig up for themselves. A feature story is one that does not have the element of rush news in it. It can be run next week just as well as today. An example of a feature story is one

that one of the leading national magazines ran several years ago on "Electricity to End Farm Drudgery."

Feature Story Effective

Feature stories are generally good publicity for farm electricity interests because they hold the attention of many readers through their human interest. This human interest quality is shown by an article that Frank Ridgeway wrote for the Chicago Tribune about electricity on the farm of the Public Service Company of Northern Illinois. He uses imagination and gets your attention by striking phrases:

"The electric motor may move the pot of gold to the country end of the rainbow."

"—a cow's beauty parlor on a farm . . . —all for the sake of producing clean wholesome milk with a low bacterial count."

"Bright lights that lured men into the city are being turned on in the country to lure them back to the farm."

"Visiting farmers of the old school see how lazy a man can be around a modernly equipped dairy barn."

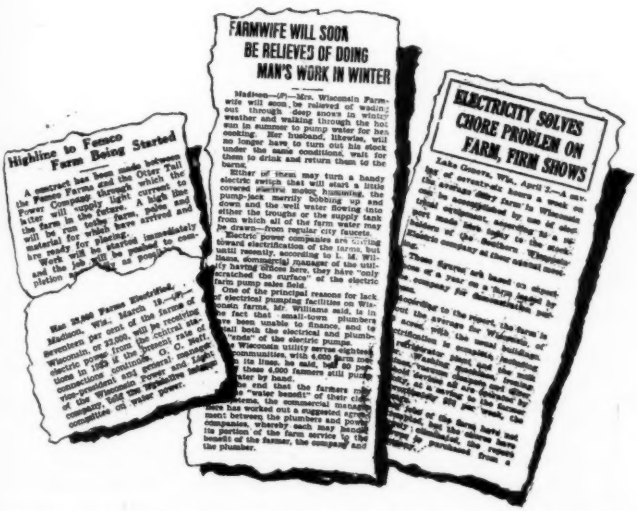
"The electrocution of flies and other insects is accompanied by the characteristic sizzling sing-sing noise—it's music to the calf's ears."

Yes, the newspapers like to know about the odd and the unusual. I have seen the news of a meeting by the rural service committee of a state association given over almost entirely to a description of the "electric fly swatter" which caught the imagination of the reporter. And when a reporter discovered that a rancher near San Antonio, Tex., had "electrified every department of his ranch from branding irons to cooling drinks," it had enough human interest for the Associated Press to pick up a three-paragraph story and wire it to papers all over the United States and Canada.

In all classes of news the electrical concern should try to answer the traditional reporter's questions:

"Who? What? Why? Where? When?"

If a reporter does not visit you regularly, there are three ways to


Highline to Fenco Farm Being Started
FARMWIFE WILL SOON BE RELIEVES OF DOING MAN'S WORK IN WINTER
ELECTRICITY SOLVES CHORE PROBLEM ON FARM, FIRM SHOWS

Here Are Typical Items Which Help Sell Rural Electrification

get the news about electricity on the farm into the paper. You can write it out and mail it in. Write it on the typewriter if you can, but pencil or pen will do. Write only on one side of the paper. Leave plenty of space between the lines for corrections to be made in case it can be used with only a few changes. Don't worry about fine writing: the paper will fix it up. What it wants from you are facts, figures, names, places, dates—information. Don't bother trying to write a headline; they'll take care of that, too, in the newspaper office. Write plainly. Print out names and initials. Sign your name and address and give your telephone number; the paper may want to call you up to ask you something more.

If you telephone it in, first get your information ready so that you can save time and confusion. Jot the facts and names down on paper so that you can give the information quickly.

Ask for the "Local News Department." Spell out all names. They will expect that to be done. Show your helpfulness by doing it before they ask you. Just after you pronounce a name the first time spell it out. It'll make a good impression.

In this case also, give the reporter your name at once—identify yourself before you start to give the item. Before hanging up give your number. He may want to verify something in his notes or get additional information suggested by the city editor.

If you write or telephone, the newspaper will know whether it is desirable for a reporter to see you or not. That's the business of the editors and they're not overlooking any bets.

Don't forget that there are likely to be local correspondents sending news from your town to other papers in your territory. If they are not working on the local papers keep them posted; they'll be glad to get news from you.

Never send the same item, written the same way to two competing papers.

Don't expect to have a perfect batting average and have everything used that you suggest, especially if it is on the thin line between advertising and news. Besides, you ought to have some news in your advertising anyway. Put some of it there. Developing your "nose for news" will make you a better advertiser of electricity on the farm.

Don't make complaints about trifling errors in stories that concern you; friendly relations with newspaper men and women are more important.

Some good suggestions about how to treat reporters was given by H. S. McCauly, in his book, "Getting Your Name in Print."

"Take them as they are and play their game. Give them what information they want and let them handle it as they please. Treat reporters as guests. See them ahead of other callers whenever possible. But don't fawn upon them."

Still another who stresed the value of cordial relations with newspaper men and women was Don Goss, in National Real Estate Journal:

"Of first importance is the matter of establishing confidence between yourself and the newspaper man. Always 'come clean.' Go further with the newspaper man than just the activities in which you alone are concerned. Give him tips on all the news that you can."

"Many central stations, dealers and contractors do not realize that local newspapers are willing to print more legitimate news about electricity on the farm than now reaches the public eye. There's lots of stuff that local electrical men could supply and that the home newspaper would be glad to print."

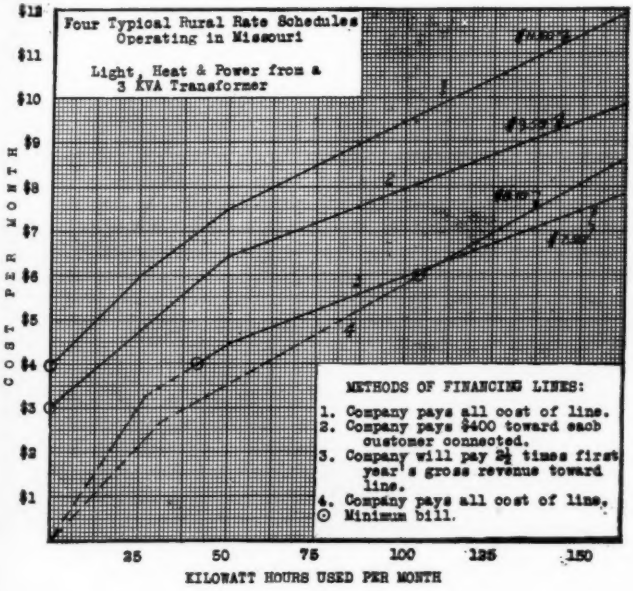
Rate Schedules

Farm Line Financing in Missouri

THE past two years in Missouri have witnessed an honest effort on the part of electric utility companies, operating there, to develop farm rate schedules and line financing policies which would be satisfactory to the customers as well as profit making for the company adopting them. Much misunderstanding has been caused in the rural districts of the state because of the variety of methods used in making farm extensions. Not only has this been true between companies operating near each other, but it has been the case within companies themselves where additions to line extensions have been made.

The rapid growth for electricity on the farm has necessitated special attention to policies for handling that business. Uses of electricity on the farm have developed much in the same way as have uses of electricity in the town home. The difference being that farm people have been quicker to take up quantity use of electricity because they had so many more places to apply it.

It is known that the success of rural electrification depends on quantity use of electric energy. Quantity use of any product must be accompanied by an understanding of the cost and the value of that product to the individual. Many Missouri companies now have separate contracts for their rural customers. These contracts are designed so that the farmer



can understand them, and he can explain to his neighbor why bills are "high" or "low" and just what his company is under contract to do for him.

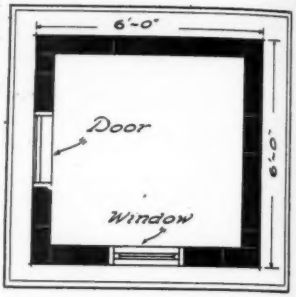
Attached are four typical rate schedules operating in Missouri for the farm connected to a 3 KVA transformer and using energy for lights, heat, and small power. In reading this chart, the vertical lines correspond to kilowatt hours used per month. The horizontal lines correspond to total cost of the energy and service used. Any point on the curve lines indicates a monthly billing (straight to the left) for a corresponding kilowatt-hour consumption (directly below that point). For instance, the point on curve No. 1 indicated by the arrow shows that the monthly billing (on the left margin) is for 150 kilowatthours (shown below) used per month.

A Frost-Proof Pump House

By DALE R. VAN HORN

THERE is always danger of water pumps freezing where no artificial heat is provided. To avoid this danger the concrete block pump house described below has been designed.

The compactness of the motor-driven pump permits its housing



Plan of Pumphouse Showing Over-all Dimensions

in a small building. This building should offer insulation to insure immuneness against frigid weather. The cell block type of house shown is therefore ideal, since it can be erected without expensive labor, the materials cost little and only a window and door are needed.

Setting upon a 6-inch wall foundation, the block walls are 6 feet wide and long and rise 6 feet high above the foundation. The top layer carries bolts which hold down the plates, that in turn carry the rafters. The roof is sheathed and covered with composition roofing.

It might be said in passing that the level inside the house has been lowered 2 feet to take some advantage of earth warmth, and if

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Here's the Pumphouse Upon Completion

Reducing Servicing Costs

By WILLIS PARKER

FIFTY cents a year per unit installed is the average service cost on all of the farm lighting plants sold and distributed by C. H. Parker and Sons, Denver, Colo., according to H. H. Parker. The firm has been selling and installing farm lighting plants for sixteen years and represents the manufacturer thereof in several states of the Rocky Mountain region.

The figure seemed to us to be unusually low, so we questioned Mr. Parker relative to methods of keeping service costs down and his replies disclosed some novel plans.

"Possibilities of frequent service calls may be reduced right in the dealer's own shop," Mr. Parker explained. "Owing to the fact that we install plants in unusual and sometimes almost inaccessible places, and at points of considerable distance from a service and sales point, we do everything we can toward insuring the successful functioning of the plant before it leaves our shop.

Proper Testing Before Installation

"The units have been thoroughly tested by the manufacturer before they are shipped. When they leave the manufacturer's hands they are in perfect condition and should function perfectly when set up in a customer's home. But, we are not content with this, for it is quite possible that in transporting from the manufacturer to us, something might have happened—a screw become loose, for example. So, we run the plant from 4 to 6 hours in our shops to be certain that all 'bugs' have been removed.

"In our territory we have a considerable variance in altitudes. Here in Denver, we are approximately 5,200 feet above sea level. We have many installations at 11,000 and 12,000 feet. A plant that operates perfectly at sea level may not work well at higher elevations, particularly elevations above 4,000 feet. Hence, we have gone to the trouble of preparing charts showing exactly the operation of a plant at elevations of 200 foot intervals. That is, we placed a unit on a truck and transported it from Denver to an elevation of 12,000 feet, stopping every 200 feet in altitude to observe just how the plant worked. From this experiment we determined the proper size aperture for the entrance of air and, when we get an order from any place in the mountain region, we drill the hole the proper size.

"Thus, when the plant leaves our establishment, it is in perfect condition, and all that it requires after being set up, is oil and gas to enable it to function as it should. Since it is in this condition, the possibilities of someone, who is unacquainted with the plant, tampering with it and getting it out of condition are remote and this, of course, reduces the possibilities of service calls early in the unit's history."

Because of the large territory covered by the company, another method of reducing service costs is that of establishing an adequate organization throughout the region to handle any service calls that may come in.

No Sales in Isolated Locations

"We prefer not to sell a lighting plant in a region where we do not have an adequate service station," Mr. Parker explained. "We want to be so organized that we can give a customer service within four hours of receipt of the call. That means that we must, before attempting to sell in the region, discover an intelligent, active person to represent us, then thoroughly train him in the service angle of the work, which means bringing him into Denver and schooling him for a few weeks. By having our service men spotted all over the region—we have about 70 representatives—the cost of

reaching a customer and getting his plant running again, is greatly reduced.

"Another important feature that tends to reduce service costs, is selling a man the kind and size of a plant that fits his purpose. In some instances automatic plants are suitable while in others the storage battery plants are to be preferred. If the plant fits the needs, is not overloaded—well, it is quite evident that there will be less cause for dissatisfaction. Dissatisfaction often breeds service calls in as much as the owner becomes impatient with the operation of the plant and his endeavors to improve it and calls a service man, whereas were he not impatient, he might adjust it himself.

"We are, in most cases, partial to the storage battery types of plants because the customer may continue to have light and power for a few days even though the generating plant is needing service.

Reducing Cost of Service Call

This naturally reduces the number of cases wherein we are called out at inconvenient times to service a plant, and this likewise reduces the cost of the service call, for the service man may visit the customer when he, the service man, happens to be in the neighborhood on another errand. Also, it frequently happens that the customer will be able to find out what is wrong, if he has plenty of time to do so, and repair it himself. This is evident from the frequency with which service calls are cancelled.

"It behooves us to eliminate as far as possible when the sale is made and the plant installed, the chances of service calls, because it is our policy, in most cases, to give the service gratis regardless of the guarantee period, for it is our best advertisement. We must admit, however, that service calls are inconvenient, sometimes. As an example: Last winter I received a call from a customer about 20 miles from Denver to come immediately. It was at night and a snow storm in progress—almost of blizzard proportions. I endeavored to delay the customer until the following day, but he insisted. After arriving at the home, I didn't blame the customer, for a new arrival in the family was expected momentarily."

Straws in Wind

(*Continued from page S 7*)

lowest consumers were charged for their current at the prevailing rates as applied to the above, the range is from 14.32c. per K. W. H., to 20.58c. per K. W. H. or a variation of 6.32c. per K. W. H. It is quite evident that these customers are paying a penalty, greater in one case than the other, for being small users. The farmer, then, should be sold on the fact that in order to obtain the greatest advantage of the existing rates offered, he must use current.

The outstanding fact which this chart reveals is that if a farmer is required to put all his spare cash into a line extension, he will not be able to finance much equipment of the power type. Therefore, it seems most logical from the standpoint of both Utility Company and the consumer that consideration be given to the question of a uniform policy relative to rural line extensions. Your committee thinks this possible.

"Straws in the wind"—the trend in agriculture—more power machinery in agriculture—the farmers awake—these are signs of the promise. The farmer wants a uniform rural extension policy. We believe that such a policy will transform the ox-cart into an airplane.

Many Arizona Farmers to Get Electric Service

At a cost of $1,200,000 the Salt River Valley electrification system in Arizona is nearing completion, bringing electricity to all the 7,000 farms in the project, of which 50 per cent have already subscribed for the service. One large unit is operating and power was to be ready for farms and ranches of the entire Salt River project by the first of June. Completion of electrification will require more than 400 miles of poles and several thousand miles of wire.

The Selling Problem

By J. C. MATTHIEU.*

THE selling problem of rural lines has been discussed for the past ten years and it is still with us.

There are three distinct selling problems each one requiring a solution of its own, namely:

1st—Selling the utility service, or rural lines.

2nd—Merchandising to rural customers.

3rd—Selling the use of merchandise after the equipment has been purchased.

The problem of selling rural lines begins with the utility management. It is useless to try to build up a rural sales organization if only half-hearted support is received from the management. Every utility manager who is serving, or thinking of serving this outlet for electric service, is asking himself, "Can rural service be made to pay a sufficient return?" Most of the executives believe that it can, but it will require considerable effort to educate the farmer to the full benefits of electric service.

Rural Demand for Electric Service to Increase

Electric service is one of the influencing components that has contributed largely to the increased standard of living of this nation; is so important that it seems that the rural communities will demand it by necessity of keeping abreast with national progress.

The hamlets are interested in electric service to rural communities inasmuch as their chances for service depend largely on how extensively the rural territory about them is developed, and their existence depends upon the prosperity of the neighborhood.

Now the Electric Utility cannot render this service at an ultimate loss, but the utilities are confronted with a public service problem that must evolve ways and means to meet the situation that will ultimately prove of mutual benefit. It should be borne in mind that the farmer today is living in an atmosphere of relief whether it is in the form of an agricultural bill or what not, and together, with an increased standard of living, is making our problem more difficult.

From the information that your committee has been able to gather. any plant that requires the least cash outlay by the consumer, is granting greatest returns, but not always results to the utility's complete satisfaction.

Rural Sales Department Should Be Set Up As Individual Unit

Having adopted a definite and reliable policy, a Rural Sales Department should be set up as an individual unit. The personnel should consist of a real salesman or salesmen. Each salesman should have a definite territory to work, to the end that he may intelligently study the conditions in his particular district with reference to line locations and farm needs. He must understand the farmer and his problems and be in sympathy with them. The company should furnish him with data pertaining to standards and costs of line construction, and I am in favor of the unit plan, whereby an estimate can be given in the field. He should have at his command information that is being disseminated by manufacturers, colleges, experimental lines, etc., and he should be backed by a suitable farm rate. The farm presents a combination, residential and industrial use, and is in a class by itself, and it would seem self-evident that

* Of Dayton Power & Light Co., Dayton, Ohio. Abstract of paper presented before East Central Div., N. E. L. A., Louisville, Ky., May 9, 1929.

the rate, to be workable, may be different from the accustomed rates existing in municipalities which we agree are classified, to meet existing requirements. The rates should be such that they include both light and small power through one meter. A promotional rate of this nature is imperative for extensive development.

Inadequacy a Fault

The standard of wiring in rural sections to date has been decidedly inferior, not particularly from the standpoint of mechanics, but the inadequacy. Much the same conditions are found in rural wiring today as were in the earlier days of the city development which necessitated additional convenient outlets, campaigns, etc. It is the duty of the rural salesmen to educate the wiremen, serving this new class of business, to install service entrances of not less than 60 ampere capacity, as well as an adequate wiring job. Too many sales of load building apparatus may be ruined because of the additional cost necessary in making service entrance changes.

Most rural inhabitants have had little to do with electrical wiring, and are not capable of passing on the correctness of standards and methods adopted by many electricians serving rural districts. Therefore, too much attention cannot be given by the rural salesmen to the end that the farmer receives that which he should justly have. Assurance should be given the farmer that the work is being done by competent hands. Although the prevailing tendency again has been to extract the cash from the customer, the same liberal policy could rightly be extended, when justified, as in the "old house" wiring campaigns. It is well to remember that the desire to use the service is almost universal at present but the ready cash is not always available.

Regarding Rural Merchandising

Farm lines having been established, the next problem is rural merchandising. With this is involved rural education on the uses of electric farm equipment. It must be remembered that it is only recently that electric driven farm machinery has been on the market, and it is a comparatively new source of power, and its possibilities are little understood by the farmer.

An equipment survey was made through a questionnaire to farmers, asking them what uses of electric service had been most successful to them. The tabulation of results in that particular section showed the desirability of pushing the sale of feed grinders, silo fillers, refrigerators and ranges.

Profitable Sales Efforts

Another study disclosed that sales effort should be expended on refrigeration, water heating and cooking, if the desired results are to be achieved. These devices, when sold and used, will give the greatest returns, and, in the majority of instances, other uses are either special to a particular farm, or contribute little to total kilowatt hour consumption. Water heating, which has been frowned upon in this section, and considered a gentleman farmer luxury, has apparently been whipped by The Ohio Edison Company which has 14 hot water installations in various types of homes, and all consumers thoroughly satisfied with the installaiton and operating costs.

Some Common Practices

Your committee finds that most companies favor the sale of socket appliances through the regular community retail outlets, the stock in many instances being consigned by the utility. The special load building equipment which has high sales resistance, and small margins of profit, is handled principally by the utility. Many companies believe that the rural stores should handle and should be encouraged to supply the regular line of electrical appliances. One company has made a study of pump jacks, feed grinders, and by its purchasing power has been able to deliver this jack and

thereby furnish running water for about $60. This involves a switch connection at sink and stock trough, the opening of the faucet starting the pump. The grinder, which has proven best suited to that community, is sold at a price that could not be profitably handled by the farm implement dealer. These two devices are the only pieces of apparatus sold by the utility.

The question of domonstrating farm equipment to educate the farmer and thereby assist merchandising salesmen is acknowledged as neccesary and is being met in various ways, the results of which are yet to be determined.

Working the County Fair

County fairs have been resorted to by some companies, with success. A complete working demonstration of load building equipment is displayed, properly labeled and manned, so that all information relative to this new source of rural power is readily available. Although, old to us, and it may seem simple, it is a new kind of power, requiring smaller equipment and, consequently, rather revolutionary to the farmer. The success of the exhibits depends on how well and convincing the demonstrations are made. Invite the farmers to bring in samples of their grain, grind it, while they wait, to the fineness that they personally desire, and have a meter installed so that they may see what it actually costs. The same method of demonstration applies to all types of equipment. This method of education is meeting with growing interest.

Other companies have resorted to demonstration trucks. This plan has been particularly well worked out through the Michigan Agricultural College co-operating with the utilities.

The line having been sold—equipment installed—does not end our problem. The farmer must be taught to use them. Let us review the status of the Marysville Experimental line. The study discloses that, with all the equipment on this line, the average consumption per month is 114 kilowatt hours, less than many of us in our city homes having only household necessities. That out of eight refrigerators, at least six were not operating five months out of twelve. That out of nine ranges, over half were not in use during the winter months.

More Rural Uses

Is there any reason to believe that the rural customer does not have more usages for electric service than city customers? Is there any reason not to believe his usage will double and treble 114 kilowatt hours, such has been the history of our other customers? The problem is to build the rural customers up to 1,000 kw-hr. per month, and this will be eventually attained. It is our job to work this out with the aid of allied interests. Rural development is an educational problem and, therefore, will take time and well-directed effort to achieve the results that are economically possible.

"The problem of selling rural lines begins with the utility management. It is useless to try to build up a rural sales organization if only half-hearted support is received from the management."

Bob's Page

Devoted to Merchandising of Electrical Equipment in Rural Communities

Conducted by Robt. J. Fulton

Electricity—What Is It?

AT last we have a definition for electricity, and it is given to us by the New York State Committee on Public Utility Information on its Utility Bulletin of January 28, which says:

"Electricity is something that starts, the Lord knows where, and ends in the same place. It is 1/36 of a second faster on its feet than its nearest competitor, backyard gossip, and when turned loose in Europe will get to the United States five hours before it starts. Nobody knows exactly what it is, because it has never stood still long enough.

"Electricity is sometimes known as science gone crazy with the heat, and if you can understand its maneuvers, you can do anything with it except open a can of peanut butter at a picnic.

"Electricity was locked up in ignorance for centuries until Ben Franklin let it out with a pass key, and since then it has been pulling off more new stunts than a pet monkey.

"With it you can start a conversation or stop one permanently, cook dinner, curl your hair, press your trousers, blow up a battleship, run an automobile, or signal Mars, and many more things are being invented."

But "Horse Power" Means Horse Power

Horse power or "H. P." is so frequently used that many have been puzzled as to just what it means and how the term originated.

The originator of the expression "horse power" was none other than the Scotch engineer, James Watt (1736-1819), who invented the modern condensing steam engine.

He selected a heavy dray horse, a dozen muscular men, and by means of a rope and traces, beginning with four men, added man after man pulling against the horse, until he found that when eight men were pulling they balanced the horse's strength.

Then continuing his experiments he found that a horse could lift, by means of a block and tackle, 330 pounds at a rate of 100 feet per minute, which, of course, was the same as lifting 33,000 pounds one foot a minute, or 550 pounds in one second; accordingly he so designated the power of his steam engines and sold them on that basis. That is known as *mechanical horse power.*

While 745.94 watts is equivalent in electrical units to one mechanical horse power, in practical calculations the basis of all electrical horse power is 746 watts, hence a kilowatt (1,000 watts) represents 1.3405 horse power of mechanical work.

Electricity the Greatest "Farm Relief"

Just as electricity has taken the back-breaking drudgery out of factory work and greatly increased factory production at lowered unit cost, so it is taking the toil, the muscle work, out of farming, and reducing the cost of crop production.

That is one of the remaining frontiers which electricity is breaking down, and I can't think of any one piece of work ahead of the electric industry which is more important in its potential social and economic possibilities. My personal belief is that farm electrification will contribute as much to farm relief as collective marketing or any plan of government aid which could possibly be adopted—perhaps a great deal more.

FARM LIGHTING

WESTERN Cable LONG LIFE BATTERIES

Will help you make more money—

WESTERN CABLE batteries mean more business and more money in your pocket, and we want you to write immediately for all the details on this business builder.

This battery incorporates the years of experience we have gained in specializing in this field. We also manufacture a complete line of A and B types of storage batteries for radios and automobiles.

Large production of plates of different kinds for the trade.

Five year guarantee

Heavy-duty plates

Extra heavy reinforced cover

Ample Sediment space

Write for proposition

Western Cable & Light Company

BALDWIN, WIS.

DIRECTORY

of Manufacturers of Electrically Operated Farm Equipment

Below is given the first part of a Directory of Manufacturers of farm equipment which may be operated electrically. In subsequent issues additional portions of the directory will be published. It is hoped that this directory will prove of value to power companies and electrical dealers in building rural business.

BOTTLE WASHERS

Cherry-Burrell Corp., Cedar Rapids, Iowa.
The Creamery Package Mfg. Co., Chicago, Ill.
Jalco Motor Co., Union City, Ind.
Rice & Adams Corp., Buffalo, N. Y.
York Ice Machinery Corp., York, Pa.

CHURNS

Cherry-Burrell Corp., Cedar Rapids, Iowa.
Cole Mfg. Co., Birmingham, Ala.
The Creamery Package Mfg. Co., Chicago, Ill.
Dazey Churn & Mfg. Co., St. Louis, Mo.
Easy Mfg. Co., Lincoln, Nebr.
The Maytag Co., Newton, Iowa.
Montgomery Ward Co., Chicago, Ill.
Sears, Roebuck & Co., Chicago, Ill.
Superior Churn & Mfg. Co., Northville, Mich.
Taylor Bros. Churn & Mfg. Co., St. Louis, Mo.

CREAM SEPARATORS

American Separator Co., Bainbridge, N. Y.
Associated Mfgrs. Co., Waterloo, Iowa.
Burton-Page Co., Chicago, Ill.
Cherry-Burrell Corp., Cepar Rapids, Iowa.
John Deere Plow Co., Kansas City, Mo.
DeLaval Separator Co., New York City, N. Y.
Empire Milking Machine Co., Rochester, N. Y.
International Harvester Co. of Amer., Chicago, Ill.
King Mfg. Co., Buffalo, N. Y.
Lindsay Bros., Inc., Milwaukee, Wis.
The Melotte Separator, Chicago, Ill.
Montgomery Ward Co., Chicago, Ill.
Pine Tree Milking Machine, Chicago, Ill.
Sharples Separator Co., West Chester, Pa.
York Ice Machinery Corp., York, Pa.

DAIRY EQUIPMENT STERILIZERS

Brower Mfg. Co., Quincy, Ill.
Cherry-Burrell Corp., Cedar Rapids, Ia.
The Creamery Package Co., Chicago, Ill.
Malsbary Sterilizer Co., Fresno, Calif.
Rice & Adams Corp., Buffalo, N. Y.
Rindman & Shipp, Inc., Seattle, Wash.
Universal Milking Machine Co., Waukesha, Wis.
H. G. Weeks Mfg. Co., Goshen, Ind.
Wellman Bros., Modesto, Calif.
York Ice Machinery Corp., York, Pa.

MILK COOLERS

Brunswick-Kroeschill Co., New Brunswick, N. J.
Cherry-Burrell Corp., Cedar Rapids, Ia.
Copeland Sales Co., Detroit, Mich.
Dole Refrigerating Machine Co., Chicago, Ill.
Electro Kold Corp., Spokane, Wash.
Esco Cabinet Co., West Chester, Pa.
Frick Co., Inc., Waynesboro, Pa.
Frigidaire Corp., Dayton, Ohio.
General Refrigerating Co., Beloit, Wis.
Glenn-Klann Mfg. Co., Milwaukee, Wis.
A. H. Reid Creamery & Dairy Supply Co., Philadelphia, Pa.
Refrigerator Dept., General Electric Co., Cleveland, Ohio.
Servel Corp., Evansville, Ind.
Victor Products Corp., Hagerstown, Md.
Wellman Bros., Modesto, Calif.
Welsbach Co., Gloucester City, N. Y.
Wolfe Engr. & Mfg. Co., Inc., Harrisburg, Pa.
York Ice Machinery Corp., York, Pa.

MILKING MACHINE

Burton-Page Co., Chicago, Ill.
D. H. Burrell & Co., Inc., Little Falls, N. Y.
Cherry-Burrell Corp., Cedar Rapids, Ia.
The Creamery Package Co., Chicago, Ill.
De Laval Separator Co., Chicago, Ill.
City, N. Y.
Empire Milking Machine Co., Rochester, N. Y.
Esco Cabinet Co., West Chester, Pa.
Hinman Milking Machine Co., Inc., Oneida, N. Y.
Myers-Sherman Co., Chicago, Ill.
Ottawa Mfg. Co., Ottawa, Kans.
Perfection Mfg. Co., Minneapolis, Minn.
Pine Tree Milking Machine Co., Chicago, Ill.
Sharples Separator Co., West Chester, Pa.
Universal Milking Machine Co., Waukesha, Wis.

MILK TESTERS

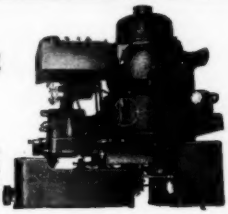
Cherry-Burrell Corp., Cedar Rapids, Ia.
Imperial Elec'l Co., Union City, Ind.
Jalco Motor Co., Union City, Ind.
Rock Island Mfg. Co., Rock Island, Ill.
York Ice Machinery Co., York, Pa.

CLIPPERS AND GROOMERS

The Harry Alter Co., Chicago, Ill.
Arco Vacuum Corp., New York City, N. Y.

(*Continued on page S 22*)

This year . . . let SUNBEAM bring you a greater profit



Small batteries carry loads up to 200 watts — plant starts automatically on heavier loads.

Put the SUNBEAM Electric Plant on your floor this year. Carry it as a standard item. Talk to your rural customers about the tremendous advantages the SUNBEAM offers.

Your farm customers and other rural home owners are "electricity wise." They realize what electricity means. They are logical prospects for the SUNBEAM.

A little sales effort and the display of a SUNBEAM Electric Plant will turn the inquiries of your customers and prospective customers into profitable sales—and profitable sales of appliances will follow the installation of a Sunbeam. Write for complete details.

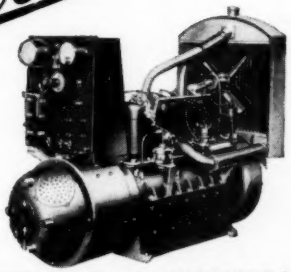
SUNBEAM ELECTRIC FARM-LITE

Starts, Oils, Regulates and Stops Itself

SUNBEAM ELECTRIC MANUFACTURING CO.
Dept. 17, Evansville, Ind.
Mfrs. of Railroad Lighting Equipment Since 1883

Universal

Not connected with any other firm using the name Universal



DEPENDABLE—ECONOMICAL
1½ - 2½ - 4 - 7½ - 10 - 12½ Kw.

UNIVERSAL MOTOR COMPANY
DEPT. EF-1
OSHKOSH, WISCONSIN.

UNIVERSAL
ELECTRIC PLANTS

Atwood Stewart Vacuum Mach. Co., Chicago, Ill.
Chicago Flex. Shaft Co., Chicago, Ill.
Coates Clipper & Mfg. Co., Worcester, Mass.
Elec. Vacuum Cleaner Co., Cleveland, Ohio.
Empire Milking Machine Co., Rochester, N. Y.
Gillett Clipping Machine Co., New York City, N. Y.
Montgomery Ward Co., Chicago, Ill.
The Scott & Fetzer Co., Cleveland, Ohio.
Standard Vacuum Cleaner Co., Cleveland, Ohio.
United Vacuum Appliance Co., Connersville, Ind.
Wiebusch & Hilger, Ltd., New York City, N. Y.

DAIRY WATER HEATERS

Arthur & Fowler Co., Portland, Ore.
Auto. Elec. Heater Co., Philadelphia, Pa.
Brower Mfg. Co., Quincy, Ill.
Cherry-Burrell Corp., Cedar Rapids, Ia.
Elec. Heating & Mfg. Co., Seattle, Wash.
Emerson Apparatus Co., Melrose, Mass.
Glenn-Klann Mfg. Co., Milwaukee, Wis.
Harvey Hubbell, Inc., Bridgeport, Conn.
Hudson Mfg. Co., Minneapolis, Minn.
Hynes & Cox Elec. Corp., Albany, N. Y.
McGraw Elec. Co., Omaha, Nebr.
Malsbary-Sterilizer Co., Fresno, Calif.
Shaw Mfg. Co., Milwaukee, Wis.
The Standard Elec Stove Co., Toledo, Ohio.
Universal Milking Machine Co., Waukesha, Wis.
Wellman Bros., Modesto, Calif.
Warren Elec. Appliance Co., Warren, Pa.
H. G. Weeks Mfg. Co., Goshen, Ind.
Wesix, Inc., San Francisco, Calif.

BROODERS

Amer. Steel Products. Co., Macomb, Ill.
Belle City Incubator Co., Racine Wis.
Brower Mfg. Co., Quincy, Ill.
Buffalo Incubator Co., Buffalo, N. Y.
Buckeye Incubator Co., Springfield, Ohio.
Close To Nature Co., Colfax, Ia.
Elec. Controller Co., Indianapolis, Ind.
Fresh Air Brooder Co., Bellingham, Wash.
Hudson Mfg. Co., Minneapolis, Minn.
James Mfg. Co., Fort Atkinson, Wis.
Liberty Marvel Co., Buffalo, N. Y.
Lindsay Bros., Inc., Milwaukee, Wis.
Lyon Elec. Co., San Diego, Calif.
Mailwin Mfg. Co., Seattle, Wash.
Master Incubator Co., Portland, Ore.
J. W. Miller Co., Rockford, Ill.
The Morris Mfg. Co., El Reno, Okla.
The Oakes Mfg. Co., Tipton, Ind.
Petaluma Elec. Incubator Co., Petaluma, Calif.
The S. & A. Company, Paris, Ill.
St. Helens Incubator Co., Centralia, Wash.
H. M. Sheer Co., Quincy, Ill.
Thermo-Elec. Incubator Co., Inc., New Orleans, La.
Wood Bros Co., Santa Cruz, Calif.

INCUBATORS

American Steel Products Co., Macomb, Ill.
Auto. Elec. Heater Co., Philadelphia, Pa.
Belle City Incubator Co., Racine Wis.
Brower Mfg. Co., Quincy, Ill.
Buckeye Incubator Co., Springfield, Ohio.
Buffalo Incubator Co., Buffalo, N. Y.
Close To Nature Co., Colfax, Ia.
Elec. Controller Co., Indianapolis, Ind.
Hudson Mfg. Co., Minneapolis, Minn.
James Mfg. Co., Fort Atkinson, Wis.
Lancaster Incubator Co., Lancaster, Pa.
Lyon Electric Co., San Diego, Calif.
Master Incubator Co., Portland, Ore.
J. W. Miller Co., Rockford, Ill.
The Morris Mfg. Co., El Reno, Okla.
The Oakes Mfg. Co., Tipton, Ind.
Petaluma Elec. Incubator Co., Petaluma, Calif.
Ira M. Petersime & Son, Gettysburg, Ohio.
Wellington J. Smith Co., Cleveland, Ohio
St. Helens Incubator Co., Centralia, Wash.
H. M. Sheer Co., Quincy, Ill.
The Tempador Co., Frenchtown, N. J.
Thermo-Elec. Incubator Co., Inc., New Orleans, La.
Wood Bros. Co., Santa Cruz, Calif.

LIGHTING FOR EGG PRODUCTION

Belle City Incubator Co., Racine, Wis.
Brower Mfg. Co., Quincy, Ill.
Eureka Tool & Mach. Co., Newark, N. J.
J. E. Gilson Co., Port Washington, Wis.
The Hartford Time Switch Co., New York City, N. Y.
Landis & Gyr, Inc., New York City, N. Y.
Lyon Electric Co., San Diego, Calif.
Merchandise Dept., General Elec. Co., Bridgeport, Conn.
Ohio Time Switch Co., Cleveland, Ohio.
Paragon Elec. Co., Chicago, Ill.
Reliance Auto. Lighting Co., Racine, Wis.
Russell Electric Co., Chicago, Ill.
Safeguard Alarm Co., Council Bluffs, Iowa.
H. M. Sheer Co., Quincy, Ill.
Time Switch Sales & Service Co., Cleveland, Ohio.
Tork Clocks, Inc., New York City, N. Y.
Ward Leonard Elec. Co., Mt. Vernon, N. Y.

CLASSIFIED ADVERTISING

VACUUM CLEANER PARTS, attachments, armatures, bags, belts, brushes, bearings, wheels, assembly and motor parts and all else. Largest line. Highest quality. Lowest prices.

REBUILT CLEANERS. All makes, any quantity. All fully guaranteed for one year. Equal to new in action and appearance. Can also supply 32-volt and non-electric. **Catalogs free.** UNITED ENTERPRISES, Inc., 13051 Athens Ave., Cleveland, Ohio.

DRINKING FOUNTAIN WARMERS

The Harry Alter Co., Chicago, Ill.
American Steel Products Co., Macomb, Ill.
Belle City Incubator Co., Racine, Wis.
Brower Mfg. Co., Quincy, Ill.
Close-To-Nature Co., Colfax, Ia.
Elec. Heating & Mfg. Co., Seattle, Wash.
Hudson Mfg. Co., Minneapolis, Minn.
James Mfg. Co., Fort Atkinson, Wis.
Lyon Electric Co., San Diego, Calif.
J. W. Miller Co., Rockford, Ill.
The Oakes Mfg. Co., Tipton, Ind.
Proctor & Schwartz Elec. Co., Cleveland, Ohio.
Russell Elec. Co., Chicago, Ill.
St. Helens Incubator Co., Centralia, Wash.
Shaw Mfg. Co., Milwaukee, Wis.

ULTRA VIOLET LIGHT

Chas. A. Branston, Inc., Buffalo, N. Y.
The Burdeck Corp., Milton, Wis.
Cooper-Hewitt Elec. Co., Hoboken, N. J.
Hanovia Chemical Mfg. Co., Newark, N. J.

ENSILAGE CUTTERS

Algoma Fdry. & Mach. Co., Algoma, Wis.
Appleton Mfg. Co., Batavia, Ill.
John Deere Plow Co., Kansas City, Mo
Fox River Tractor Co., Appleton, Wis.
Freeman Mfg. Co., Racine, Wis.
Gehl Bros. Mfg. Co., West Bend, Wis.
International Harvester Co. of Amer., Chicago, Ill.
Papec Machine Co., Shortsville, N. Y.
The Ross Cutter & Silo Co., Springfield, Ohio.
I. B. Rowell Co., Waukesha, Wis.
Smalley Corp., Manitowoc, Wis.

FEED GRINDERS

Algoma Fdry. & Mach. Co., Algoma, Wis.
Appleton Mfg. Co., Batavia, Ill.
N. V. Bowsher Co., S. Bend, Ind.
John Deere Plow Co., Kansas City, Mo.
A. M. Dellinger, Lancaster, Pa.
Duplex Mill & Mfg. Co., Springfield, Ohio.
Fairbanks, Morse & Co., Chicago, Ill.
The W. W. Feed Grinder Co., Wichita, Kans.
Freeman Mfg. Co., Racine, Wis.
S. Howes Co., Inc., Silver Creek, N. Y.
International Harvester Co. of Amer., Chicago, Ill.
Letz Mfg. Co., Crown Point, Ind.
New Winona Mfg. Co., Winona, Minn.
Papec Machine Co., Shortsville N. Y.

Farmers Want Power

This subject was so ably covered by E. W. Hamilton of the American Thresherman in an address before the Wisconsin Rural Electrification Conference that the publishers of this magazine have reprinted it in folder form. Any one interested can obtain copies by writing ELECTRICITY ON THE FARM at 225 West 34th St., New York, or 30 No. Michigan Ave., Chicago.

BROWER'S VIOLET LIGHT

BROODER

With New Heat Control **$8.50**

Brower's Electric "Save-All" fully automatic brooders raise from 10 to 20% more chicks. Less attention, labor, time. Many exclusive features. Galvanized steel, with asbestos-filled, heat-saving lining and metal warmth-deflector. Pilot bulb is violet; heating unit enclosed, guaranteed. Special thermometer. Brower's heat control saves current. Shipped complete with cord, ready for socket. Order direct, if in a hurry, at these prices. State voltage.

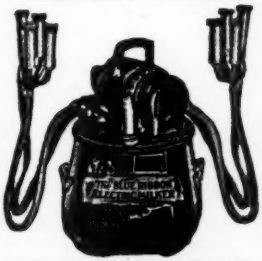
75 day old chick cap.	$ 8.50
125 day old chick cap.	9.75
300 day old chick cap.	13.50
600 day old chick cap.	18.00
1000 day old chick cap.	22.00

Write for BIG CATALOG showing over 350 items including Electric Storage Brooders, Feed Mixers, Alarms, Fountain Heaters, Time Switches, Heating Elements, Automatic Controls, Oat Sprouters, Egg Testers, and Sprayers.

BROWER MFG. CO., Dept. 3538, Quincy, Ill.

DEALERS—Write for proposition.

Blue Ribbon Electric Milker



A Portable Milker Requiring No Installation

The "Blue Ribbon" is a self-contained milker, requiring no pipe lines or extra equipment of any kind. It operates direct from the light socket of either high line or farm light plant. A beautiful catalog and complete information will be sent on request. Write us today.

Electric Products Corporation
7 Bluff Ave., La Grange, Ill.

Pump House

(*Continued from page S 12*)

the house is increased in size, thus permitting steps, this should be dropped to 3 or 4 feet with corresponding lowered roof.

Insure the minimum vibration and motor attention by setting the motor on a concrete base which sets well into the ground. Conduits leading the copper wires to the outside source of current should pass through the wall up under the eaves. This affords greater protection against the weather and if desired this outlet can be further protected by covering it with a tin can, the bottom of which has been provided with holes for the wires.

New Sales Promotion Help for Myers Dealers

In this day of "Pep Bulletins" and so-called dealer helps which are long on praising the product but sometimes too short on giving the dealer any real help, "Myers Water Way" strikes a new note that promises to register favorably with the distributors of this well-known line of pumping equipment.

This new sales and service bulletin, first issued in November, will be released monthly to bring to Myers dealers all the best sales arguments, talking points and installation suggestions that are culled from experience in the field. The purpose of the bulletin is more than a sales stimulator. The first issue made clear why every Myers water system or pump user should be a booster for the line and particularly for the dealer who made the installation. The importance of the "Satisfied Customer" to power company cooperation with Myers dealers, and the advantage of each dealer becoming acquainted with his local power company men are also stressed.

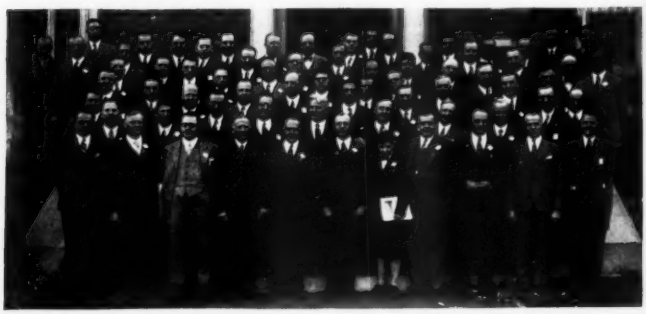
So that the Myers representative may easily preserve all issues of the bulletin as a ready reference to all the brass tack installation and service suggestions, the company provides an unique mailing envelope which serves as a wall pocket for filing purposes.

Iowa to Hold Farm and Home Exposition

The Iowa Farm Bureau has completed elaborate preparations for the eleventh Annual Convention of the Iowa Farm and Home Exposition, which is to be held at the Shrine Temple, Des Moines, Iowa, on January 14th-16th.

The purpose of the exposition is to promote high standards of living on Iowa farms, together with the promulgation of better methods of farming. The Farm Bureau recognizes that an effective way to reach the key individuals of its 60,000 membership is through exhibits, hence the plans for holding the exposition in connection with the convention.

The exposition is under the direction of Prof. Frank D. Paine, of the Iowa State College, Ames, Iowa. Prof. Paine is Secretary and Manager of the Convention and Exposition.



Here's an enthusiastic group of agricultural engineers on the campus of Mass. Agricultural College, where the Northeastern Section of the American Society of Agr. Engineers held their annual meting, Oct. 16-17-18.